

Remarks

Reconsideration and further examination of the above-identified patent application in light of the present Amendment, Reply, and Remarks is respectfully requested.

Authorization is hereby given to charge any deficiency in fees or any other fees in connection with the above-identified patent application to our Deposit Account No. 23-0920.

Claims 1-21 were pending prior to this Amendment.

Claims 3, 5-9, 18, and 21 have been canceled.

The matters objected to in claims 4, 7, 14-17, and 19 have been corrected or canceled as per the Examiner's requests in order to make the claims more definite and clear to better comply with 35 USC §112. The undersigned attorney thanks the Examiner for pointing out the misspellings and typographical errors in claims 7 and 17 so that they can be corrected. The errors were made through inadvertence and mistake without intent to deceive.

Claims 1, 2, 4, 10-17, and 19-20 have been amended to more particularly point out and distinguish applicants' invention over the references of record. Antecedent basis and support for the amended matter in the claims are found in the specification and original claims.

Claims 1, 2, 4, 10-17, and 19-20 are presently pending for the consideration of the Examiner.

Amended claim 1 is directed to a final foamed product primarily of a PET matrix composition of recycled materials. The PET matrix composition consists essentially of a micro cellular closed cell composite with discontinuous voids. Advantageously, the PET matrix composition further comprises recycled polyethylene terephthalate (PET), a branching agent, and an elastomeric material comprising recycled tires. Significantly, the final foamed product comprises a docking post, telephone pole, beam, deck, boat slip, pier, stake, shovel, rake, ax handle, hammer, handles, shingle, baseball bat, or cricket bat.

Claim 1 has been initially rejected under 35 USC 102(b) as being anticipated by Subramanian et al. US Patent No. 5,128,202 ("Subramanian").

Subramanian does not disclose a PET matrix comprising recycled PET, a branching agent, and recycled tires as specified in applicant's amended claim 1. Furthermore, Subramanian does not disclose a final foamed product comprises a docking post, telephone pole, beam, deck, boat slip, pier, stake, shovel, rake, ax handle, hammer, handles, shingle, baseball bat, or cricket bat, as required in applicant's amended claim 1.

While Subramanian describes use of recycled PET as suitable for their process, Subramanian's example I uses PET of 0.68 I.V. which would be higher than what would normally be expected from a post consumer PET bottle. Post consumer bottles are typically of lower I.V. as direct resources. One intermediate processing step that is commonly employed in the post consumer PET industry is to solid-state process it to useable PET molecular weight (I.V. such as described in Example I). This step adds to the cost of using recycled PET and it is an object of applicant's disclosure to minimize costs by the use of a chain branching agent, e.g. PMDA or the bisoxazoline described. The Subramanian process is also a batch molding one which is more costly to operate than the continuous extrusion process that the applicant has described of high melt strength.

A prior patent is a reference only for what it clearly discloses or suggests; it is improper use of a patent as a reference to modify it to that which it does not suggest; *In re Hummer*, 113 USPQ 66 (CCPA 1957). See also *In re Stencel*, 4 USPQ2d 1071, 1073 (Fed. Cir. 1987).

The defects of Subramanian are not cured by the other references, namely: U.S. Patent No. 5,397,825 ("Segrest"); Gallucci U.S. Patent No. 4,632,962 ("Gallucci"); Kent U.S. Patent No. 5,811,493 ("Kent"); Lee U.S. Patent No. 6,132,840 ("Lee"), and Cardi publication ("Cardi") comprising an article entitled "Chain Extension of Recycled Poly ethylene terephthalate with 2,2-Bis (2-oxazoline)".

Segrest, Gallucci, Kent, Lee, and Cardi do not disclose a final foamed product comprises a docking post, telephone pole, beam, deck, boat slip, pier, stake, shovel, rake, ax handle, hammer, handles, shingle, baseball bat, or cricket bat, as recited in applicant's amended claim 1.

Furthermore, Kent utilizes PET of I.V. 0.58-0.64 to extrude a thin film of paper-like material. The cooling/quench cycle of such processing would be rapid for such a fabricated material and not entail cooling stresses of a large final foamed product comprises a docking post, telephone pole, beam, deck, boat slip, pier, stake, shovel, rake, ax handle, hammer, handles, shingle, baseball bat, or cricket bat. Such an object would require a higher I.V. feedstock, yet must be produced economically to avoid the objection of Kent. Hence, a chain branching agent would be critical which the Kent patent does not disclose

Cardi does not disclose the use of bis-oxazoline, with recycled PET and recycled tires as set forth in applicant's amended claim 1.

While Segrest uses recycled tires particles (40-95 parts) with a liquid plasticizer/binding agent (5-60 parts), Segrest it does not disclose foaming, let alone a final

foamed product. Furthermore, as mentioned above Segrest does not disclose a final foamed product comprising a docking post, telephone pole, beam, deck, boat slip, pier, stake, shovel, rake, ax handle, hammer, handles, shingle, baseball bat, or cricket bat

Lee described a batch compression molding process in which Lee places molten materials in a form up to 300 °C and applies 150-3000 tons pressure, then cooling to 40-70 °C under pressure. This would preclude the possibility of a foaming step and attaining applicant's claimed final foamed product and applicant's foamed railroad tie. Lee is also uneconomical to operate in comparison to applicant's continuous extrusion process.

The use of anhydrides by Galucci entail those that can react with free radical grafting of polyolefins such as maleic anhydride, etc. There is no mention of the condensation polymer branching agents such as pyromellitic dianhydride or trimellitic anhydride for this application because these would not work in Galucci's system. Galucci must have aliphatic unsaturation as opposed to aromatic ring unsaturation. Galluci does not disclosed the combination of recycled PET, a branching agent, and recycled tires.

It is submitted that it would not be an obvious matter of choice for one skilled in the art to reconstruct Subramanian, Segrest , Gallucci, Kent, Lee, and Cardi to achieve applicant's final foamed product as recited in applicant's amended claims without the benefit of hindsight of applicant's disclosure and such is clearly improper. As the Federal Circuit Court of Appeals (formerly the U.S. Court of Customs and Patent Appeals) has emphasized, the Examiner must be ever alert not to read obviousness into an application on the basis of applicant's own statements and must further view the prior art without reading into that art applicant's teachings, *In re Spinnoble*, 405 F. 2d 578, 160 USPQ 273 (CCPA 1969). It is not enough for a valid rejection of the patent application to view the prior art in retrospect; once applicant's disclosure is known, the prior art should be viewed by itself to see if it fairly discloses what the applicant has done, *In re Schaffer*, 220 F. 2d 476, 108 USPQ 326 (CCPA 1956).

Applicant's amended claims 2 and 4 are directly dependant upon applicant's independent amended claim 1 and, therefore, require all the structural elements, features and limitations of independent amended claim 1. Additionally, applicant's amended claims 2 and 4 requires other structural elements, features, and limitations, which are not fairly taught or suggested by Subramanian, Segrest , Gallucci, Kent, Lee, and Cardi, such as: a final foamed product comprising recycled milk jugs, recycled plastic toys, ethylene-propylene-diene, recycled wiper blades, recycled vehicle seals, recycled refrigerator seals, and/or recycled door gaskets.

Applicant's amended independent claim 10 is directed to a final foamed product comprising a micro cellular closed cell composite with discontinuous voids and/or an open cell composite with semi-continuous voids. Desirably, the final foamed product comprises a composition by weight: (1) from about 5% to about 95% recycled polyethylene terephthalate (PET) with an inherent viscosity (I.V.) from about 0.4 to about 0.9; (2) from about 5% to about 50% elastomeric-containing material comprising styrene-butadiene, polybutadiene, polyisoprene, and/or natural rubber; and (3) from about 0.05% to about 2% of a branching agent providing a chain extending agent comprising pyromellitic dianhydride, trimellitic anhydride, benzophenonetetracarboxylic acid dianhydride, sulfonyldiphthalic acid dianhydride, 2, 2-bis (2-oxazoline), or pentaerythritol. The recycled PET comprises recycled PET bottles. The elastomeric material comprises granulated or pulverized recycled tires.

Subramanian, Segrest , Gallucci, Kent, Lee, and Cardi do not disclose the specific range of 0.05% to about 2% of a branching agent providing a chain extending agent, let alone in combination with the specified weight amount and viscosity of recycled PET bottles along with the specified weight amount of granulated or pulverized recycled tires as required in applicant's amended independent claim 10.

"It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of the other parts necessary to the full appreciation of what such references fairly suggests to one of ordinary skill in the art." *In re Wesslau*, 147 USPQ 391, 393 (CCPA 1965).


Applicant's amended claims 11-17 and 19-20 are directly or indirectly dependant upon applicant's amended independent claim 10 and, thereby, require all the structural elements, features and limitations of amended independent claim 10. Additionally, applicant's amended claims 11-17 and 19-20 requires other structural elements, features, and limitations, which are not fairly taught or suggested by Subramanian, Segrest , Gallucci, Kent, Lee, and Cardi, such as: further specific weight amount of recycled PET bottles and granulated or pulverized recycled tires; specific foaming agents; specific weight amounts of a compatibilizing agent and a hydrolytic resistance agent; further specific amounts of the branching agent; specific types of polyolefin; recycled products comprising recycled vehicle wiper bladders, recycled door gaskets, recycled vehicle seats, and/or recycled refrigerator seals; and a final foamed product comprising a foamed railroad tie, foamed post, foamed beam, foamed pole, foamed deck, foamed boat slip, foamed pier, foamed stake, foamed shovel, foamed rake, foamed ax handle, foamed hammer, foamed handle, foamed shingle, foamed baseball bat, or foamed cricket bat.

In summary, applicant's composition, as recited in the amended claims, provides a very useful and user friendly final foamed product, which is not anticipated or obvious from Subramanian, Segrest , Gallucci, Kent, Lee, and Cardi.

Inasmuch as the preceding amendment complies with the Examiner's requests, cures the Examiner's objections and patentably distinguishes applicants' remaining claims over the cited prior art references of record, it is respectfully submitted that the above-identified application is now in condition for allowance. A Notice of Allowance is respectfully requested.

The Examiner is invited and encouraged to contact the undersigned attorney in order to expedite this application to allowance, if the preceding does not already place the above-identified application in condition for allowance.

Respectfully submitted,



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